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MARGINAL & CENTRAL: THE POSITIONING OF AN E-PORTFOLIO TOOL IN WORKPLACE LANGUAGE LEARNING

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Abstract

This paper explores an Activity Theory based approach to investigating the use of an e-portfolio tool in supporting workplace second language learning. The investigation is on a language learning project funded by the European Commission Lifelong Learning Programme Leonardo da Vinci as a Transfer of Innovation project.

The Second-language Competency for Technicians in Industry (Lang2Tech) project was conceived as a response to evidence on across Europe that technician workforce supply is not aligned with locations of demand resulting in occupation shortages in specific regions of the continent. The most significant constraint on technician mobility was identified as that of language. The L2T project has adapted an e-portfolio tool designed to assess basic skills, to support the demonstration of second language competence through assessing basic skills in that second language. As Piaget argues, change and learning comes not just through exposure to a 'better' theory, but rather through actively applying that 'better' theory in the world [1]. In other words, to practice (with) it. The purpose of the e-portfolio tool is to assist learners in capturing evidence of language use in practice and to make that evidence, and hence language competence, visible.

When embedded into the process of workplace language learning, the e-portfolio aims to support collaborative language learning through peer network, private and 'open' reflections and the capturing of evidence demonstrating the evolution of second language competence. Thus the e-portfolio tool aims to span both a positivist stance for assessment purposes and a learner-centric constructivist stance [2].

As a mediating artefact present in the language learning activity system, the e-portfolio tool offers two separate e-portfolio environments: personal and institutional [2]. Within the personal space, learners are able to record their profile, keep a reflective learning diary (blog), regularly completed self-assessment forms and attach evidence to back up their progress (documents, pictures or audio/video files). At specified points, the learners submit sections of their e-portfolio collection to an institutional area which offers customised access to four specific groups: tutor, assessor, moderator and administrator. The Lang2Tech work should benefit the five project language strands: Italian, Spanish, German, Russian and English. The e-portfolio templates are interoperable within the LEAP2.0 framework. Lang2Tech expected impact centres on the placement of Lang2Tech Certification at comparable levels within Europe's emerging NQFs, and on a consequent increase in occupational mobility for technicians.

Activity Theory [3, 4] is adopted for the study as it allows for multiple constructions of practices of, in this case, language learning. As a socio-material perspective, Activity Theory understands learning practices in terms of people, activities and non-human materials being intertwined in a dynamic series of interactions. In the L2T project, the e-portfolio sits at the centre of these interactions and potentially anchoring the networking effects of this form of technology enhanced learning and enabling the emergence of communities of learning.

This paper draws on initial findings from the language learning evaluation data to investigate activity systems. The paper will be particularly concerned with the development of a community of language learners with a potential for transnational dimensions.

Keywords: e-portfolios; language learning; VET

1 INTRODUCTION

This paper explores an Activity Theory based approach to investigating the use of an e-portfolio tool in supporting workplace second language learning. The investigation is on a language-learning project funded by the European Commission Lifelong Learning Programme Leonardo da Vinci as a Transfer of Innovation project: the Second-language Competency for Technicians in Industry (Lang2Tech) project.

2 THE LANG2TECH PROJECT

2.1 Overview of the Project

Objective 3.3 of the Education and Training 2010 Work Programme deemed foreign language provision in Europe inadequate and called for new methodologies to be developed and implemented. The Second-language Competency for Technicians (Lang2Tech) project response to this challenge has been to develop language curricula test learning programmes centred on an adapted e-portfolio tool from the Leonardo project European Certificate of Basic Skills (EUCESB). The Lang2Tech project is predicated on a key notion: that demonstrating basic skills through the medium of a second language is proof of successful communication in that language.

The Lang2Tech consortium includes language-teaching units at two universities, a national agent for Leonardo Mobility placements, an association of researchers specialising in European integration, a consultancy on employee competences in industry, the Scottish Lifelong Learning Directorate, and Unite the Union.

To date, the project has analysed the content and outcomes of existing language-learning programmes in the partner countries of UK, Germany, Spain, Italy and Lithuania to determine where technicians' second-language needs are not catered for. Based on the results of this analysis, learning support material has been developed to assist technicians to evidence their second-language competency in their Lang2Tech e-portfolios. The pilot test of our products is being conducted with technicians already trained and qualified in their own disciplines to EQF Levels 3-6, in five countries with five languages (Italian, Spanish, German, Russian and English). The project is using a blend of formal teaching and supported individual non-formal and informal learning in the workplace, and use outcomes-based assessment to provide new Lang2Tech Certification across the Common European Framework of Reference for Languages (CEFR). Our expected impact centres on the placement of Lang2Tech Certification at comparable levels within Europe's emerging NQFs, and on a consequent increase in occupational mobility for technicians.

2.2 Understanding the need

Research shows that across Europe, technician labour supply is not aligned with locations of increasing demand for skilled technicians, as evidenced for example in national shortage occupation lists. The most significant constraint on these technicians' occupational mobility is absence of second-language competency. This derives from lack of opportunity or incentive for language-learning in technicians' education, training and work socialisation.

Technician training in the Member States is of high quality and technicians in industry in Europe are highly qualified, but typically they lack the language skills to work outside their mother-tongue environment. There is however an increasing need for labour mobility in many technical disciplines owing to skills shortages. Technician skills shortages are evidenced in national shortage occupation lists [5], [6].

At 2010's European Day of Languages conference, the European Commissioner for Education, Culture, Multilingualism and Youth [7] presented the conclusions of a study on the effects on the European economy of foreign-language skills shortages in enterprise. In a sample of nearly 2000 businesses, 11% of respondents had said they had lost contracts – worth millions of euros in many cases - as a result of a lack of language skills [8].

2.2.1 *Defining a technician*

In operationalising the needs analysis, the Lang2Tech project partners recognised that the definition of the term “technician” had to be revisited and a common understanding of the term and its use in the Project affirmed in a way that respected the diversity of connotations of the term across the member

states. Within Northern Europe, there is a tendency to define a technician towards a more focused association with science and technology. For example, in Lithuania ‘technician’ is defined as a technical specialist of an average rank, or someone who works in any technical field, for example, medical and dental prosthetic technicians [9]. While more expansive definitions tend to be found in southern Europe. For example, in Italy ‘technician’ is defined as a person who is particularly competent in an art, science, or discipline or other activity chiefly in its practical use [10]. Currently, the definition of technician is also given to specialized independent workers, artisans and workers (and in the army to troops and non-commissioned officer), whose competence is based not only on experience and traineeship but also on short educational classes with practical purpose. Hence, a generalised definition of the term “technician” was adopted in line with the existing European Classification of Occupations.

2.2.2 Evidence of the mobility issue

The Lang2Tech Project addresses this issue by providing focused, high quality opportunities for technicians (as such skilled specialists) to learn another European language in order to address help this shortage and contribute to pursuit of a better balance between need and demand for and supply of such workers, at the same time as aiding their employability.

Within Europe, one of the most significant constraints on employability amongst skilled technicians is recognised to be lack of competence in more than one European language [8]. The Lang2Tech project aims to address this constraint, taking account of relevant contextual factors.

In responding to the requirement of a more mobile and flexible technician workforce in Europe, the Project will provide a significant, direct opportunity for the participants in the various pilots to enhance personal employability and, more importantly, create the basis of a potentially widely transferable model for many others to do likewise, on the basis of high quality, targeted provision of a second European language learning for use in the workplace.

A core assumption underpinning the project is that in terms of skilled technicians a ‘common language of understanding’ can be established through focused high quality language training and support for language learning provided this goes beyond existing provision, and meets the needs of individuals as well those of employers.

2.2.3 Evidence of language needs

The review of the evidence for technician language needs and existing provision involved reviewing several hundred documents and online sources. In addition, 89 one-to-one interviews were conducted (involving 44 technicians; 23 managers/employers and 22 teachers) and a series of workplace observations were carried out, in the premises of employers providing participants for the pilots. We also had the opportunity to access evidence of need from three employers in the engineering and electronics sectors.

Consultations with British Airways Aircraft Refurbishment Division, Rolls Royce Aerospace Engineering and Mahle Engine Systems on their experiences in introducing language learning to technicians in the workplace, reinforced the view that reached from the research that there is little if any customised material available to support such learning. Furthermore, that any such material that may be available is unlikely to have been subject to systematic trialling, testing and evaluation.

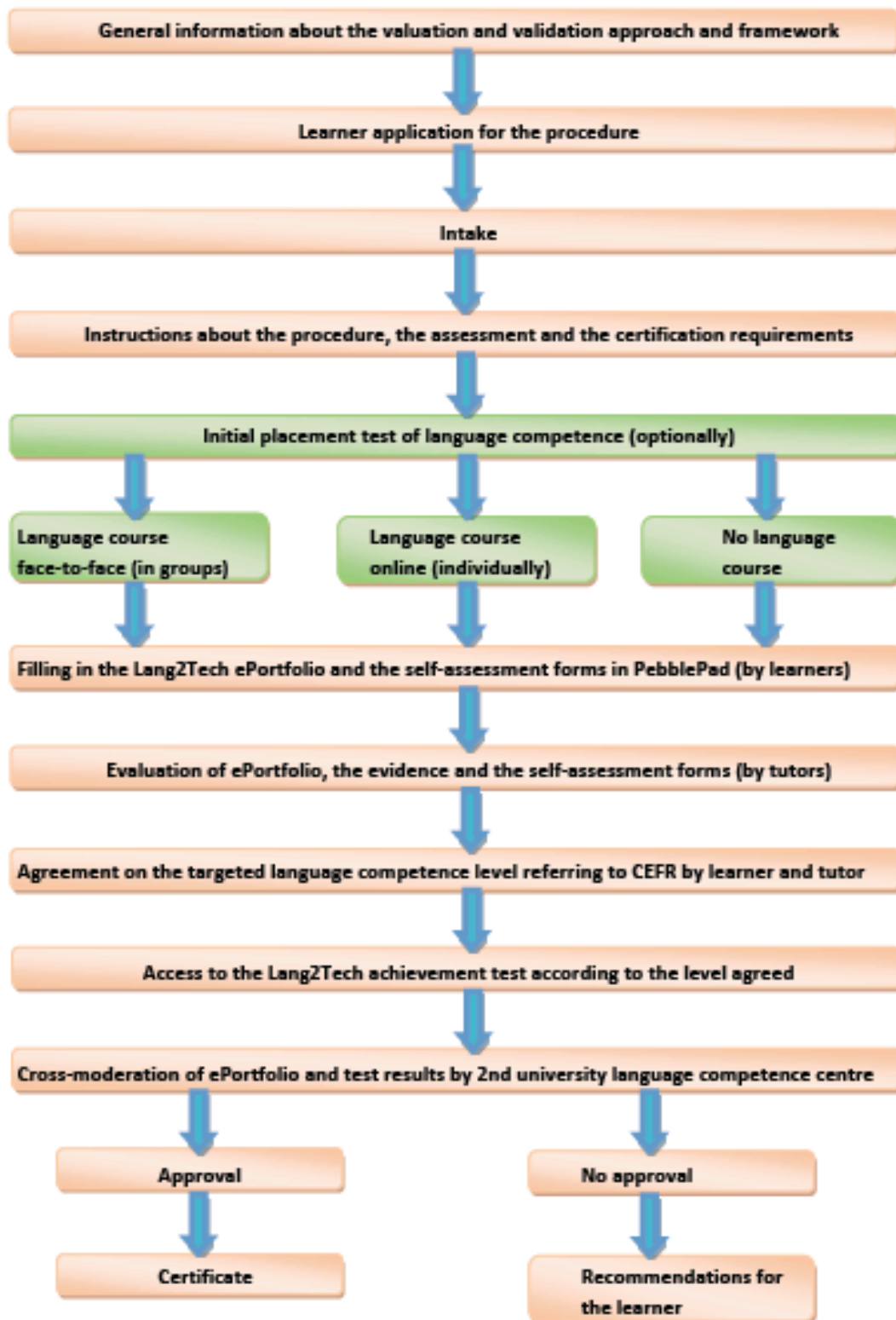
Much or most teaching of additional or second European languages is of a generalist nature other than in the case of some specialist provision, notably for (general) business purposes. As Gomez de Enterría points out [11], though provision of Spanish for specific purposes has grown rapidly over the past twenty years and benefitted from more general developments in foreign language teaching over that time, several specialist fields have unmet needs and demands. This situation is replicated in the cases of the other target languages in this project. There is therefore a requirement for a ‘ladder of opportunity’ for technicians to progress their learning of a second (or subsequent) European Language from basic to advanced levels of competence and building from the generic (conversational) to the more advanced specialized and more comprehensive.

2.3 Our response: an overview of the learning programme

The Lang2Tech language learning and assessment programmes concentrate on principles derived from European developments in the validation of non-formal and informal learning [12]. The validation processes enable to delivery of personalised learning via the e-portfolio tool supporting the initial assessment of language competence, the distribution of language learning materials and summative

and formative assessment tasks. The e-portfolio supports the learner in making their existing second-language competence visible both to others and themselves and in gathering evidence demonstrating the ongoing development of their competence as the learning programme progresses.

Figure 1: the Lang2Tech learning programme scheme



The Lang2Tech e-portfolio has been constructed using the PebblePad e-portfolio system. The e-portfolio uses a series of templates that directly support the desired outcomes of the project. The e-portfolio also holds a range of learning materials including a number of typical workplace scenarios to provide realistic situations for learners to practice second-language use in action. The value for these learners is in using the scaffolding [19] and supporting prompts to make meaningful entries to support their learning – wherever that learning is situated. The scenarios are based from common situations identified through the second-language needs analysis research and workplace observations. The scenarios so far developed include:

- Describing the contents of a chemical laboratory
- Giving an opinion including agreeing and disagreeing in a conversation
- Understanding health and safety instructions
- Job interviews

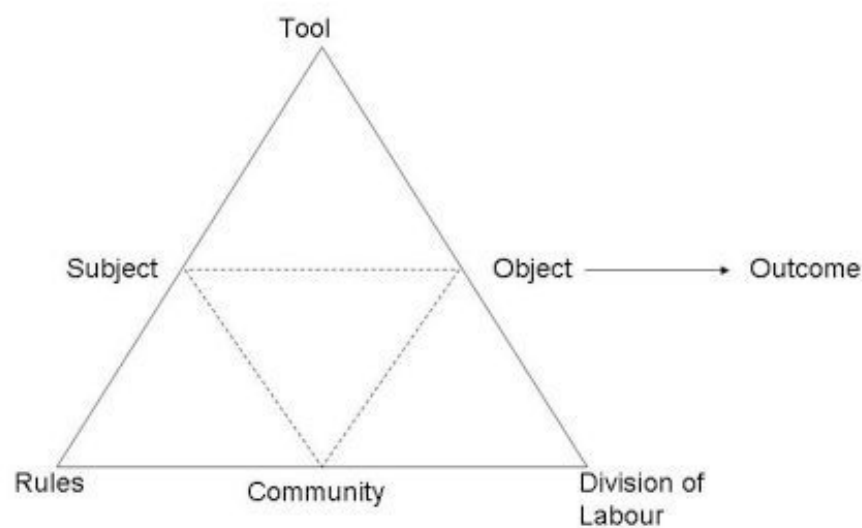
In adapting the EUCEBS e-portfolio tool for Lang2Tech, DIALANG scales, the ALTE Framework and 'Can Do' Statements, and other related research and products that are anchored to the CEFR have been consulted and considered. The adaptation of the EUCEBS e-portfolio tool is being completed based on suggestions and contributions from all Lang2Tech partners. The presence of the six CEFR levels in both the Lang2Tech e-portfolio tool and the Europass European Language Portfolio will provide a direct means to ensure language-competence visibility to Europe's employers.

The Lang2Tech products will be available in the five project languages (Italian, Spanish, German, Russian and English), and the partners will be active after the project lifetime in promoting Lang2Tech and licensing organisations to award Lang2Tech Certification. The project's impact focuses on the placement of Lang2Tech Certification at comparable levels within Europe's emerging NQFs, and on a consequent increase in occupational mobility for technicians.

3 THEORETICAL PERSPECTIVE

The theoretical perspective selected to investigate the Lang2Tech e-portfolio system is Activity Theory. Activity Theory as an approach to analysing and understanding situated practices that involves combinations of people, tasks and tools [3, 4] developed a visual representation of an activity system. Within this model, the participants in the system are to be understood as subjects interacting with specific objects using given tools within a broader context including common rules and divisions of labour of a community to achieve specified outcomes (Figure 1):

Figure 2: Activity System



Within such an Activity System, learning occurs through on-going cycle of activities and the creation of artefacts to address real-world situations and problems [13]. As Piaget argues, change and learning comes not just through exposure to a 'better' theory, but rather through actively applying that 'better' theory in the world [1].

Questions arising from Activity Theory include:

- What sort of activities are being performed?
- Who is involved in the activity? Who are the subjects?
- By what means (tools) are the subjects performing the activity?
- Why is the activity taking place? What is the desired outcome?
- What are the rules and regulations that are applied to the activity and what is the cultural context within which the activity take place?
- How is the activity organised and what roles are being performed? What is the division of labour for the activity?
- What is the community or environment within which the activity is taking place?

Through an Activity Theory approach, workplace learning is viewed as arising from activities in the workplace and interactions with resources including people as well as other physical resources including technology to achieve a particular outcome [14]. Hence learning as a mediated and collaborative activity emphasises the relationships between the elements in the top triangle in the Activity System model (Figure 2): the subjects, objects and the tool (as a mediating artefact).

Subject: refers to a an individual or a group of individuals participating in an activity.

Object: refer to the focus of the activity and acts as a shared motive for the activity. The object has been referred to as the “problem space” [15]

Tools: refer to the instruments that mediate the subjects interactions with the object and can include theories, mental models and processes as well as physical tools such as software.

Furthermore, the relationships and interactions between these three components of the system are contextualised within the wider **communities** that the learners are based within including the specific learning community focused on the “problem-space”. Such communities operate within a number of explicit and implicit **rules** and where learners act according to roles in a **division of labour** [14].

4 THE E-PORTFOLIO

4.1 Lang2Tech e-portfolio: personal & institutional

The Lang2Tech e-portfolio is the output of adapting the existing intellectual body of data in the EUCEBS e-portfolio tool, developing specific templates for the learners within the PebblePad e-portfolio system which would be available in the institutional area of PebblePad (known as ‘gateway’) under the name “Lang2Tech e-portfolio” for technician language learners.

There are several subject groups who are actively accessing PebblePad: learners, tutors, assessors, moderators, top-level admins. Each operating with distinct Activity Systems. These distinct Activity Systems share common elements including the key tools although the object and outcomes of their interactions with these tools, and thus the mediating effect of these tools will be different. For the purposes of this paper, the focus will be on the second-language learners.

In terms of basic operation, the system allows its users to easily manage digital content (uploading files, deleting files, free text input including reflective narratives, saving test responses, tagging files, sharing content, searching content and allocating content to task spaces set for all learners by the tutors).

Within the personal space, learners are able to access and populate their skills profile, personal learning diary, action plans and other records.

In Pebblepad, skills profiles are self-evaluation questionnaires that allow the language learners to audit their current skills and abilities. This is based on the contents of the EUCEBS domains Communication, Numeracy, ICT, and Interpersonal Skills which are adapted to form an assessment framework. However, the ‘Learning to Learn’ and ‘Citizenship’ domains of the EUCEBS e-portfolio tool are not included whilst a new Workplace Terminology domain to include competences in the mastery of technical terminology. Once the initial self-assessment has been completed, learners will be able to link evidence to highlight specific statements or create action plans which might help them to work on

a particular skill. Whilst the evidence can be attached in form of digital files, it might be more natural to use entries from a reflective learning diary (blog).

Throughout their working experience, participants are encouraged to keep their personal reflective diary. Learning diaries (or blogs) are cornerstones of reflective practice and critical reflexivity [16]. In this case, the blog is used dialogically: the tutor can evaluate students' progress and help them. Students can value relationships with tutors who read and respond [17] A confidential, trusting, non-inspectorial relationship with tutors is essential. The blog is then becoming a lively element of a growing e-portfolio of evidence that blends with the face-to-face learning interventions.

The Lang2Tech skills profile has been created specifically to allow learners to present evidence of competence in the specified domain of communication:

- reading;
- writing;
- listening;
- speaking;
- interpersonal/ social interactions and
- workplace terminology

and according to the appropriate level of the Common European Framework (CEFR) as follows:

Figure 4: the CEFR levels

Proficient users	C2	Mastery
	C1	Effective operational efficiency
Independent user	B2	Vantage language users
	B1	Threshold language user
Basic User	A1	Breakthrough language user

Specific files can be selected and categorised for presentation in the skills profile for assessment by the learning course assessors and project moderators. The skills profile will also provide the evidence for the Lang2Tech certificate at the appropriate level of the CEFR (levels A1 – C2).

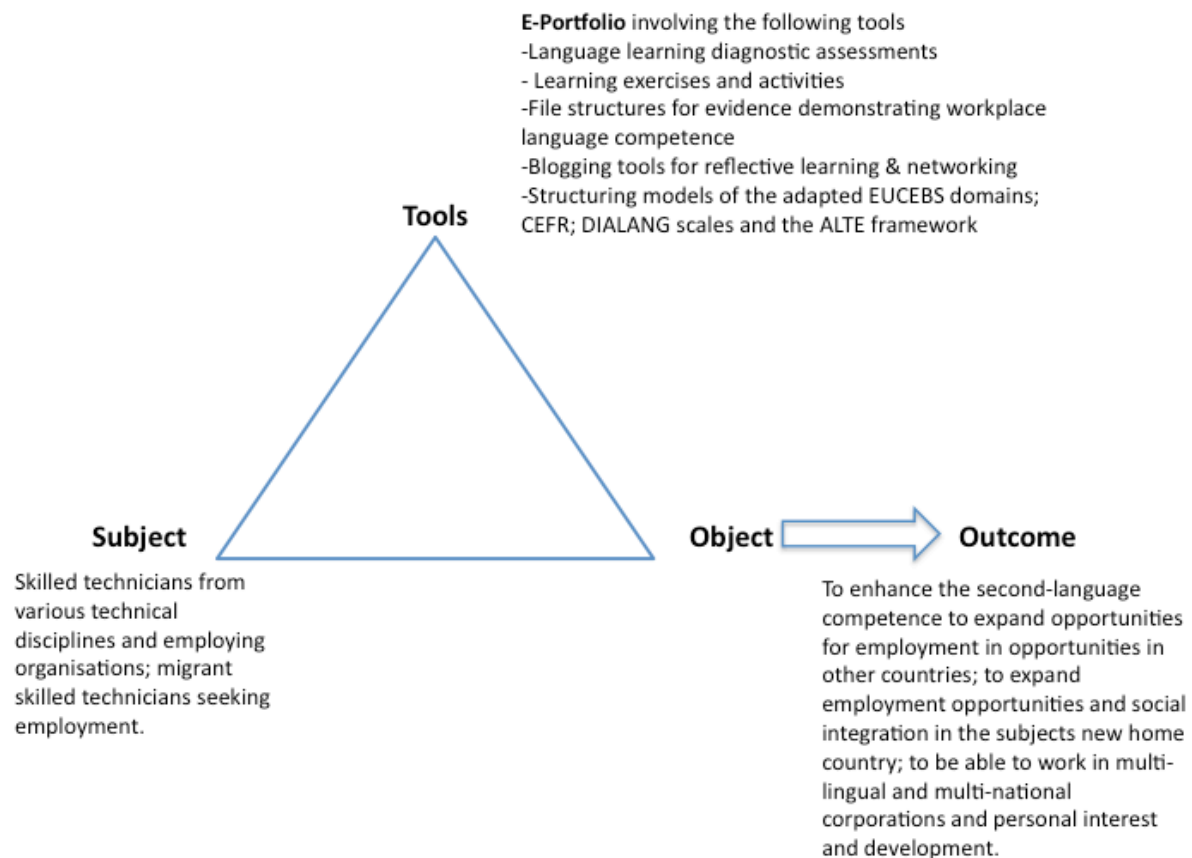
In the institutional area of Lang2Tech e-portfolio (gateways) learners can publish their work for viewing by others such as tutors, examiners or peers, for assessment or feedback. Not only do gateways make the process of supervising students' development very flexible, but also the subjects are able to use this institutional space for social networking and the support for enhancing the community of learners [18]. The social networking features are based on specific gateway settings and the use of group blogs. They allow learners learning in the same country or language: Italian, Spanish, German, Russian and English to exchanging goals and aspirations, experiences of the language courses and/or connecting on areas of interest and hobbies with the aim of supporting communities of learning. The main features of the gateway blog arrangement are: a simple template; users may embed their existing learning artefacts that are automatically updated when modified; security features allow posts to be open to public, accessible to selected networks, available to tutors & assessors only or posts can be entirely private; posts can be categorised including pre-determined categories from the CEFR levels and language communication domains; viewers can leave comments on posts.

Thus the e-portfolio **tool** and the **rules** that can be associated with the assessment and validation of informal and non-formal language learning processes combine to jointly scaffold the learning activities for the subjects. These specific project components of the rules the subjects will be learning within will be common across the different countries and languages being learned. As these rules of assessment are articulated in to the mediating tools of the learning experience, common aspects of the learning 'problem-space' emerge across all the subject groups which, in turn, create the scope for further subject networks and Activity Systems to evolve within the project activity boundaries.

4.2 The Lang2Tech e-portfolio Activity System

From the preceding discussion, the complicated nature of the functions and purposes of the e-portfolio system in the Lang2Tech becomes apparent. Activity Theory itself becomes a tool for making visible that complicatedness and for supporting the project in actively seeking to understand and strengthen the coherence of the learning experience within the project. The Activity System of the Lang2Tech e-portfolio tool can be understood as follows (figure 5):

Figure 5: the Lang2Tech e-portfolio Activity System



This learning Activity System takes place within the contextual components of **communities** of language-learning based on the objects of learning (second languages and technical domains) and anticipated outcomes that may transcend national bases. The learning activities and mediating tools are framed by the evidence requirements and **rules** of formal validation processes and certification processes. The learning communities involve an informal **division of labour** involving emerging different roles based on differing second-language competence, technical knowledge and awareness of the second-language cultures.

5 CONCLUSION

This paper provides a brief overview of the Lang2Tech project that is addressing second-language learning needs for skilled technicians in Europe. The paper uses Activity Theory to provide an initial exploration of the role, position and functions of an e-portfolio tool in mediating and scaffolding second-language learning and also promoting the emergence of language learning communities.

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